

Notice of Allowability

Application No.

09/656,763

Examiner

Hai L. Nguyen

Applicant(s)

WU ET AL.

Art Unit

2816

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed on 02/19/04.
2. ☒ The allowed claim(s) is/are 5-7 and 9-30.
3. ☒ The drawings filed on 10 September 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.

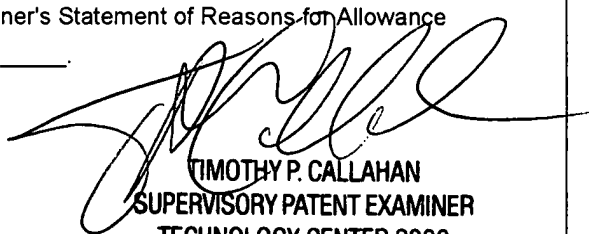
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


TIMOTHY P. CALLAHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

DETAILED ACTION

Response to Amendment

1. The amendment received on 02/19/04 has been received and entered in the case. As to the prior art rejections to the claims, Applicant's amendments have overcome the rejections, as such; the rejections have been withdrawn. Since the amended claims now read over cited prior art of record, the case is found to be in allowance condition.

REASON FOR ALLOWANCE

2. The following is an examiner's statement of reasons for allowance:

The prior art of record does not disclose or suggest a signaling device (as shown in Figs. 4 and 6), as recited in claim 5; comprising a signal generator generating a plurality of output signals ($\Phi 1$ - $\Phi 8$) at a plurality of respective time intervals wherein said signal generator further comprises a second plurality of delay cells (24a-24d, 25a-25d) respectively generating the plurality of output signals; a plurality of time interval control units (20) regulating the respective time intervals of the plurality of output signals; a plurality of output buffers (26a-26d, 27a-27d)) respectively outputting a plurality of substantially uniformly time spaced channel signals; and specifically the limitation directed to and a plurality of delay comparators (60a-66a), wherein each delay comparator receives predetermined ones of the plurality of channel signals output from said plurality of output buffers and produces respective ones of the individual controls signals (Vctrl1-Vctrl8) received by the first plurality of delay cells (22a-22d).

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The prior art of record does not disclose or suggest a signaling device, as recited in claim 7, and specifically the limitation directed to the first plurality of delay cells (10 in instant Fig.3) are in a ring oscillator used in a phase locked loop (PLL)-based multi-phase clock generator system.

The prior art of record does not disclose or suggest a signaling device (as shown in Fig.3), as recited in claim 9, comprising a first set of delay cells arranged in series (10), wherein each of the first set of delay cells produces a delayed output signal; and specifically the limitation directed to a second set of delay cells (14a-15d) respectively coupled to ones of the first set of delay cells; wherein each of the second set of delay cells receives a unique control signal (Vctrl1-Vctrl8) controlling the timing of the channel output signal (Φ 1- Φ 8) output by each of the second set of delay cells.

The prior art of record does not disclose or suggest a signaling device (as shown in Figs.4 and 6) and a method of use thereof, as recited in claims 16, 22, and 25, comprising: a phase detector (44); a charge pump (42); a loop filter (40); first plurality of delay cells (22a-22d); plurality of output buffers (26a-26d, 27a-27d); a calibration loop (60a-66a); and specifically the limitation directed to a second plurality of delay cells (24a-24d, 25a-25d), each coupled between one of said first plurality of delay cells and a paired one of said plurality of output buffers, wherein each of said plurality of delay cells receives an individual delay control signal to control delay of the cell in providing an output signal to its associated output buffer.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

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fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

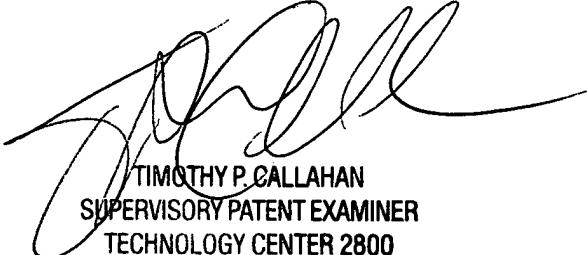
Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai L. Nguyen whose telephone number is 571-272-1747 and Right Fax number is 571-273-1747. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 571-272-1740. The fax phone numbers for the organization where this application or proceeding is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1562.

HLN 
March 15, 2004


TIMOTHY P. CALLAHAN
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